

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2018****Subject Code:2153905****Date:04/12/2018****Subject Name: Nanotechnology and Environment****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

	MARKS
Q.1 (a) Define Risk and categorize it.	03
(b) Differentiate between direct risk and indirect risk.	04
(c) Justify the following statement	07
(1) Nanotechnology could make battery recycling more effective	
(2) Nanomaterials can be used as treatment of waste cleanup in water.	
(3) Nanotechnology based solutions for oil spills.	
Q.2 (a) Define ultra-filtrations and explain how it is different from normal filtration.	03
(b) Explain the working of Reverse Osmosis	04
(c) Write a note on nanostructured ceramic membrane for waste water treatment.	07
OR	
(c) What is Human Health Hazards? And what are its preventive measures?	07
Q.3 (a) Justify how pH governs the photo catalytic effect.	03
(b) Explain the working mechanism of reactive catalytic ceramic membrane.	04
(c) What is pulmonary system and what is the effect of CNT on it.	07
OR	
Q.3 (a) What effect will be seen when insoluble solids are inhaled by human body?	03
(b) Explain the practical example of photo catalytic mechanism.	04
(c) Write a note on how TiO ₂ Nanoparticles help to works for water purification process.	07
Q.4 (a) Explain the damage done by arsenic impurity observed in water.	03
(b) Explain the chemistry how a catalyst is degraded.	04
(c) Write a note on factors which affect the photo catalytic process.	07
OR	
Q.4 (a) Explain the dose response evolution.	03
(b) What is aquaporin and explain its working mechanism.	04
(c) Give various applications of Inorganic and Organic membranes.	07
Q.5 (a) Classify the membranes based on the size.	03
(b) Explain how Nano membranes help domestic water treatment.	04
(c) Define oxidative stress and how justify how it is related to the pulmonary inflammation?	07
OR	
Q.5 (a) Define Intrinsic and Extrinsic factors.	03
(b) Write a note on photo catalytic degradation of specific waterborne pollutants.	04
(c) Write a short on methods by which hazards can be predicted and its preventive measures.	07
